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SoCAL IP LAW GROUP LLP 310 N. WESTLAKE BLVD. STE 120 WESTLAKE VILLAGE, CA 91362				
			EXAMINER BLENMAN, AVALON	
			ART UNIT	PAPER NUMBER
			2153	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/033,328

**Applicant(s)**

PATEK ET AL.

**Examiner**

Avalon Blenman

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/09/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This office action is a second action in response to amendment and remarks filed 06/16/2005. Claims 1-25 are presented for further consideration, of which 1, 8, 14, 22, and 25 are independent claims. Claim 9 has been amended. No claims have been cancelled or added. This office action is made **FINAL**.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 07/18/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Response to Amendment***

3. The amendments to the abstract, specification, drawings, and claim 9 have been accepted by Examiner. As such, these rejections have been withdrawn.

4. Applicant's arguments concerning the 112 rejection of claim 17 are persuasive. As such, this rejection has been withdrawn.

### ***Specification***

5. The disclosure is objected to because of the following informalities: the phrase "The selected output ports are copied to concurrently." is unclear (¶0006). It is believed this is intended to read: *The incoming frame is copied to selected output ports*

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*concurrently*. This would then be in agreement with the amended portion of the Abstract. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims **1-7, 8-13, 14-21, 22, 24, & 25** are rejected under 35 U.S.C. 102(e) as being anticipated by **Sindhu et al. (US Patent 6,493,347)**, hereafter referred to as Sindhu.

8. Regarding independent claim 1, Sindhu discloses a method (fig. 18) for sending a data item (packet) from a source (fig. 2B, #150, input mutiport) to selected destinations of a plurality of destinations (fig. 2B, #150-n, output multiports) in a switching network, said method comprising:

- examining said data item (packet key) to determine a routing identifier (“key destination information”) for said data item (col. 6, lines 12-17);

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- using said routing identifier (key destination information) as an index, accessing a data structure comprising routing control values for said plurality of destinations (col. 6, lines 18-21); and
- concurrently transferring (“broadcasting”) said data item from said source (input mutiport) to said selected destinations (output multiports) based on said routing control values (results) (col. 6, lines 21-29, col. 17, lines 13-15).

9. Regarding claim 2, Sindhu further discloses:

- said data structure comprises a table (routing table, col. 5, lines 61-62).

10. Regarding claim 3, Sindhu further discloses:

- said table (routing table) comprises predetermined routing information (col. 3, lines 30-34, col. 6, liens 18-21).

11. Regarding claim 4, Sindhu further discloses:

- said data item (packet) comprises a portion of a frame (col. 6, lines 58-60);

*[It is established that the packet can be divided into portions (cells.)]*

12. Regarding claim 5, Sindhu further discloses:

- said source (input multiport) comprises an input queue (fig. 3A, #312, buffer, col. 6, lines 31-40).

13. Regarding claim 6, Sindhu further discloses:

- said routing control values (results) is part of a mask (col. 17, lines 5-10, fig. 14, #1402).

*[It is inherent that the routing table contains mask information since this is what is included in retrieved notification results, fig. 14, #1402.]*

14. Regarding claim 7, Sindhu further discloses:

- said switching network is part of a router (fig. 2B).

15. Regarding independent claim 8, Sindhu discloses a method (fig. 18) for multicasting a frame (packet cell) in a router (fig. 2A, #20), said router comprising an input queue (fig. 2B #150, input multiport) and a plurality of output queues (fig. 2B #150, output multiport), said method comprising:

- determining a destination identifier (fig. 3C, #366, output ID port) for said frame (packet cell) received by said input queue (col. 6, lines 12-17);
- using said destination identifier (fig. 3C, #366, output ID port), locating a data structure comprising a mask (fig. 14, #1402) for said plurality of output queues (col. 6, lines 18-21, col. 17, lines 5-10); and
- concurrently transferring a reference (fig. 14, #1406, full address) to said frame (packet cell) to at least two selected output queue controllers (fig. 3A, #305, read request queue) in accordance with said mask (col. 6, lines 21-26, col. 17, lines 5-15).

16. Regarding claim **9**, Sindhu discloses:
  - copying a word associated with said reference to said frame (read request) to selected output queues (output multiport) of said plurality of output queues corresponding to said selected output queue controllers (read request queue) (col. 6, lines 26-29, col. 12, lines 26-29).
17. Regarding claim **10**, Sindhu discloses:
  - said data structure comprises a table (routing table), said table comprising said mask (inherent, col. 5, lines 61-62, col. 17, lines 5-10).
18. Regarding claim **11**, Sindhu discloses:
  - said destination identifier (fig. 3C, #366, output port ID) is an index into said table for selecting said mask (col. 6, lines 18-21, col. 17, lines 5-10).
19. Regarding claim **12**, Sindhu discloses:
  - said frame (packet cell) is stored in a shared memory (fig. 2B, #104) and is located by said reference to said frame (col. 6, lines 10-12, col. 17, lines 23-24).
20. Regarding claim **13**, Sindhu discloses:
  - said reference to said frame includes a pointer (full address) to said frame (col. 17, lines 23-24, col. 13, lines 52-64).

21. Regarding independent claim **14**, Sindhu discloses a multicasting system (fig. 2A) in a switching fabric for routing data in a frame (packet cell) received at an input queue (fig. 2B, #150, input multiport) to a plurality of selected output queues (fig. 2B, #150, output multiport), comprising:

- a table (fig. 2B, # 109, routing table, col. 5, lines 61-62) having a plurality of predetermined routes (col. 3, lines 30-34), said table addressed by a destination ID (fig. 3C, #366, output port ID) in said frame (packet cell), and said table comprising a mask (fig. 14, # 1402) corresponding to said destination ID (col. 6, lines 18-21, col. 17, lines 5-15);
- a memory (fig. 2B, # 109, controller memory,) for storing said mask (inherent, fig. 14, # 1402), said mask indicating said plurality of selected output queues (col. 5, lines 61-62, col. 17, lines 11-15); and
- selected output queue control modules (fig. 3A, #305, read request queue) for said plurality of selected output queues (output multiport), said selected output queue control modules used for copying said data (read request) to said plurality of selected output queues (col. 12, lines 26-29).

22. Regarding claim **15**, Sindhu discloses:

- a start of frame pointer (full address) for addressing a memory area (memory bank) in a shared memory (fig. 2B, #104, controller memory) having said frame



(packet cell), wherein said start of frame pointer is concurrently copied to said selected output queue modules (col. 6, lines 18-16, col. 17, lines 5-15, 23-24).

23. Regarding claim **16**, Sindhu discloses:

- said frame (fig. 3C) has a frame format comprising: a type (# 356), a destination ID (# 366), and data (# 354).

24. Regarding claim **17**, Sindhu discloses:

- said frame (fig. 3C) has a type (# 356), a route (destination information), and *user defined control information* (other information) (col. 6, lines 12-17).

25. Regarding claim **18**, Sindhu discloses:

- said frame (fig. 3C) as a frame format comprising: a type (# 356), a route (key destination information), and data (# 354) (col. 6, lines 12-17).

26. Regarding claim **19**, Sindhu discloses:

- said route includes a multicast flow ID (col. 6, lines 12-17).

27. Regarding claim **20**, Sindhu discloses:

- said route includes a unicast destination port ID (fig. 3C, # 366, "output port ID") (col. 7, lines 30-33).

28. Regarding claim **21**, Sindhu discloses:

- said memory (controller memory) for storing said mask (inherent) includes a lockable row (SDRAM bank) (col. 16, lines 56-59).

29. Regarding independent claim **22**, Sindhu discloses a system (fig. 2A) for multicasting a frame (packet cell) in a router (fig. 2B) having a plurality of input ports (fig. 2B, #150, input multiport) and a plurality of output ports (fig. 2B, #150, output multiport), comprising:

- a first crossbar switch (fig. 2B, #100, input switch) for transferring said frame (packet cell) from an input port (fig. 2B, #150, input multiport) of said plurality of input ports to a shared memory (fig. 2B, #104) (col. 6, lines 10-12);
- a frame pointer (fig. 14, #1406, full address) for referencing said frame (packet cell) stored in said shared memory (col. 17, lines 23-24);
- a second crossbar switch (fig. 2B, 102, output switch) for transferring said frame (packet cell) using said frame pointer (full address) to a plurality of selected output ports (fig. 2B, #102, output multiport) of said plurality of output ports (col. 6, lines 12-26);
- and a control unit (fig. 2B, # 106, controller) for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes (col. 3, lines 30-34, col. 6, lines 18-21)

30. Regarding claim **24**, Sindhu further discloses:

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- said control unit (controller) comprises a lockable cache memory (SRAM) for storing a mask, said mask (inherent, fig. 14, #1402) used in selecting said plurality of selected output ports (col. 16, lines 56-59)

31. Regarding independent claim **25**, Sindhu discloses method (fig. 18) for sending a frame (packet cell) from a source (fig. 2B, #150, input multiport) to selected destinations of a plurality of destinations in a router (fig. 2B, #150-n, output multiports), said method comprising:

- means for examining said frame (packet cell) to determine a destination identifier (key destination information) for said frame (col. 6, lines 12-17);
- using said destination identifier (key information) as an index, means for accessing a data structure comprising a mask (inherent, fig. 14, #1402) for said plurality of destinations (col. 6, lines 18-21, col. 17, lines 5-15, lines 23-24); and
- means for concurrently transferring at least one portion of said frame (packet cell) from said source to said selected destinations based on said mask (col. 6, lines 21-26, col. 17, lines 5-10)

### ***Claim Rejections - 35 USC § 103***

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

33. Claim **23** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Sindhu** in view of **Sakamoto et al. (US Patent 6,836,479)**, hereafter referred to as Sakamoto.

34. Regarding claim **23**, Sindhu teaches all the limitations of claim 22 as set forth above. Sindhu does not explicitly teach transferring frames to the output ports happens in parallel. Nonetheless, this feature would have been an obvious modification to the system disclosed by Sindhu as evidenced by Sakamoto.

In analogous art, Sakamoto discloses a system for multicasting a frame in a router having a plurality of input ports (fig. 17, #102, 3) and a plurality of output ports (fig. 17, #103, 4), comprising: a first crossbar switch (fig. 21, #121, cell switch input buffer) for transferring said frame from an input port of said plurality of input ports to a shared memory; a frame pointer (col. 5, lines 30-35) for referencing said frame stored in said shared memory ("container", col. 3, lines 2-11, col. 8, lines 51-54) ; a second crossbar switch (fig. 21, #122, cell switch output buffer) for transferring said frame using said frame pointer to a plurality of selected output ports of said plurality of output ports; and a control unit (fig. 1, #60-1, col. 5, lines 6-10) for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes (col. 4, lines 41-54). Sakamoto further discloses:

- transferring said frame using said frame pointer to a plurality of selected output ports happens in parallel (col. 6, lines 29-33)

Given this feature, at the time of the invention, one of ordinary skill in the art would have readily recognized the advantages and desirability of combining the teachings of Sindhu's system with Sakamoto's system where transferring of frames to the output ports happens in parallel.

The motivation for doing so would be to allow frames to be transmitted to more than one output port at a time, increasing throughput (see Sakamoto, col. 6, lines 20-22).

### ***Response to Arguments***

35. Applicant's arguments filed 06/16/2005 have been fully considered but they are not persuasive.

(A) Referring to independent claim 1, Applicant argues that Sindhu does not teach "one or more multiports" or "the multiports" or "the destinations". Applicant further argues that Sindhu's system is limited to a single destination and a single multiport (pg. 12).

(B) Referring to independent claim 8, Applicant argues that Examiner recites "unrelated and disjoint portions of Sindhu" (pg. 12). Applicant argues that the Office Action fails to explain where Sindhu teaches, "concurrently transferring said frame to at least two selected output queue controllers in accordance with said mask (pg. 12-13). Applicant further argues that the mask taught by Sindhu fails to have the same characteristics and functionality recited in claim 8 (pg. 13).

(C) Regarding independent claim 14, although Applicant admits that Sindhu teaches a routing table (fig. 2B, #109, col. 5, lines 61-62), Applicant argues that the Office Action does not mention where Sindhu teaches that the routing table has “a plurality of predetermined routes”. Furthermore, Applicant argues that the citation to Sindhu does not teach “copying data to said plurality of selected output queues”.

36. Referring to argument (A) above, Examiner disagrees. Sindhu does indeed teach plural multiports (see fig. 2B #150-0-150-3, col. 5, line 64 – col. 6, line 9). Furthermore, Sindhu discloses that the packets can be broadcast (col. 17, lines 13-15), this would inherently be functionally equivalent to “concurrently transferring said data item from said source to said selected destinations” as described in claim 1.

37. Referring to argument (B) above. Examiner disagrees. The portions cited by Examiner are not “unrelated” and “disjoint”. For further clarification, Sindhu discloses that the routing identifier (key destination information) is derived from the header field of the packet (col. 6, lines 12-17, fig. 3C, # 352, col. col. 6, line 66 – col. 7, line 6). The controller 106 uses the destination identifier to locate “a data structure comprising a mask (fig. 14, # 1402) for said plurality of output queues”, and concurrently transfers (“notifies”) “a reference to said frame to at least two selected output queue controllers

("may be sent to more than on multi-function multiport") in accordance with said mask"  
(col. 17, lines 5-15).

38. Referring to Argument(C) above, it is obvious that the "look-up" function described by Sindhu (col. 3, lines 30-34. col. 6, lines 18-21), relates to the routing table. Sindhu discloses that the "look-up" engine determines the proper path through the router for the data packet in the system". The "proper paths" disclosed by Sindhu is inherently the "plurality or predetermined routes".

Furthermore, Examiner draws to Applicant's attention the definition of a routing table. Examiner emphasizes that by definition of a routing table the "proper next segment" is inherently a "predetermined route".

**routing table-** The information in any given network node that is used to determine the route of a received message so that it may be transmitted on the proper next segment of the path to its destination.  
[www2.themanualpage.org/glossary/glo\\_r.php3](http://www2.themanualpage.org/glossary/glo_r.php3)

**routing table-** Table stored in a router that keeps track of routes (and in some cases, metrics associated with those routes) to a particular network destination.  
[developer.novell.com/research/appnotes/1994/may/05/06.htm](http://developer.novell.com/research/appnotes/1994/may/05/06.htm)

Furthermore, Examiner also disagrees that Sindhu does not teach "copying data to said plurality of selected output queues". Sindhu indeed discloses a " read request", in which "said data is copied to plurality of selected output queues" ("transferred from a memory bank", col. 12, lines 26-29)

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39. Examiner therefore maintains that Sindhu reads on the limitations as claimed, and thus maintains the present rejections.

***Conclusion***

40. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

41. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Ferguson et al. (US Patent 5,909,440) relates to a routing system, method, and apparatus for routing packets through a data switch.

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Avalon Blenman whose telephone number is (571) 272-




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5864. The examiner can normally be reached on Mon-Fri, 7:00 AM - 4:30 PM (even date Mons. off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Avalon Blenman  
11/09/2005



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